Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 12(5): 1985, 28 October 2016 doi: http://dx.doi.org/10.15560/12.5.1985
ISSN 1809-127X

Xenopholis werdingorum, Jansen, Álvarez & Köhler, 2009 (Squamata: Dipsadidae): range extension with comments on distribution

Randy L. Powell[1*], **Cord Blake Eversole**[2], **Ashton V. Crocker**[1], **Dennis Lizarro**[3] and **Reinaldo Cholima Bravo**[3]

1 Department of Biological and Health Sciences, Texas A&M University - Kingsville, 700 University Ave., MSC 158, Kingsville, Texas 78363, USA
2 Caesar Kleberg Wildlife Research Institute, Texas A&M University - Kingsville, 1150 Engineering Ave., MSC 218, Kingsville, Texas 78363, USA
3 Centro de Investigación de Recursos Acuáticos (C.I.R.A.), Universidad Autónoma del Beni "José Ballivián", Trinidad, Bolivia
* Corresponding author. E-mail: randy.powell@tamuk.edu

Abstract: We present a significant range extension of *Xenopholis werdingorum* from Bolivia. There is a dearth of information on this recently described species, and this account significantly contributes to knowledge of its geographic range.

Key words: Beni; Totaizal; Bolivia; primary rainforest; Neotropics

The genus *Xenopholis* Peters, 1869 is a group of relatively small (300–450 mm) Neotropical cryptozoic snakes (Cunha and Nascimento 1978; Martins and Oliveira 1998; Jansen et al. 2009; Costa et al. 2013). *Xenopholis* is a small taxon consisting of three species; *X. scalaris* (Wucherer, 1861), *X. undulatus* (Jenson, 1900), and *X. werdingorum* Jansen, Álvarez & Köhler, 2009 (Uetz and Hošek 2016) distributed across French Guiana, Brazil, Bolivia, Peru, Columbia, Ecuador, and Paraguay (Hoge and Federsoni 1975; Jansen et al. 2009; Loebmann 2009; Ribeiro et al. 2011; Hamdan, et al. 2015). A morphological character unique to the genus is their distinctive vertebrae which have broadened and bifurcated neural spines (Boulenger 1896; Cunha and Nascimento 1978). Boulenger (1896: 231; Fig. 1) presented detailed drawings of the vertebrae and Jansen et al. (2009: 38; Fig. 7) provided radiographic images. Additionally, the genus and species have a remarkable history of taxonomic confusion and difficulties of identification: for an in depth history and analysis see Jansen et al. (2009).

The most recent addition to the genus, *X. werdingorum,* was described from three female specimens collected in the Department of Santa Cruz, Bolivia. Since the description of this species (Jansen et al. 2009), there have been an additional three specimens collected near the border of the departments of Santa Cruz and Beni, which were deposited in Museo Noel Kempff Mercado (MNK). Marques et al. (2005: 73) cited *Xenopholis* sp. from "Fazenda Cabaceiras, Poconé, Mato Grosso", while Marques et al. (2015, p. 89) cited *X. werdingorum* from "UHE Luís Eduardo Magalhães, Palmas, Tocantins". Moreover, due to the novelty of *X. werdingorum*, there is a paucity of information in the scientific literature regarding the distribution, life history, and general ecology of this species. Herein, we describe an additional specimen of *X. werdingorum* from Beni, Bolivia that represents a considerable range extension.

The specimen (CIRA- 299; Figure 1) was collected on 26 June 2015, at 23:40 h, during a herpetofaunal survey of the Reserva de la Biósfera Estación Biológica del Beni and surrounding area (Departmento del Beni, Provincia de Yacuma). This individual was found alive under a palm frond in primary rainforest 0.8 km northeast of the indigenous community of Totaizal (14.87693° S, 066.32169° W, datum WGS84; Figure 2). The specimen was collected and deposited in the herpetology collection of Centro de Investigación de Recursos Acuáticos.

Scale counts and scutelation follow Dowling (1951) and Peters (1964). Measurements were taken using a flexible ruler to the nearest millimeter. Sex was determined by the probe method following (McDiarmid et al. 2012).

Identification of the specimen was determined by meristic data, coloration and photographs (from the original description), as well as morphometric

Figure 1. *Xenopholis werdingorum* (CIRA-299) collected during a herpetofaunal survey of the Reserva de la Biósfera Estación Biológica del Beni and surrounding area (Departamento del Beni, Provincia de Yacuma). **A.** Dorsal view. **B.** Ventral view. **C.** Live specimen.

comparison provided by Jansen et al. (2009). Identity was also confirmed by Dr. Martin Jansen, Senckenberg Research Institute and Natural History Museum, Frankfurt, Germany.

The coloration and pattern of the specimen is in accord with the original description by Jansen et al. (2009). Meristic data was also congruent, with the exception of the ventral scale count which was slightly lower than the original species account. The specimen (CIRA- 299; Figure 1) presented the following characters and meristic data: female; total length 39.2 cm; SVL 33.8 cm; tail length 5.4 cm; weight 15.25 g.; dorsal scales smooth; dorsal scale rows 19/19/17; prefrontals 2; preoculars 1; postoculars 2; supralabials 8, 4th and 5th in contact with orbit; infralabials 9, 1st to 5th in contact with anterior and posterior chinshields; temporals 1+2; loreal 1; genials 2 pairs; ventrals 165; subcaudals 39; anal scale undivided.

This record of *X. werdingorum* represents the northwestern boundary of this species' known distribution (Figure 2). This extends the range of *X. werdingorum* 265 km west from the location of the nearest reported specimens. It is likely that the species is distributed throughout Bolivia and possibly neighboring countries in South America. Clearly more specimens are needed for comparison, to delimit geographic range, and to develop a greater understanding of the natural history of this handsome, enigmatic species.

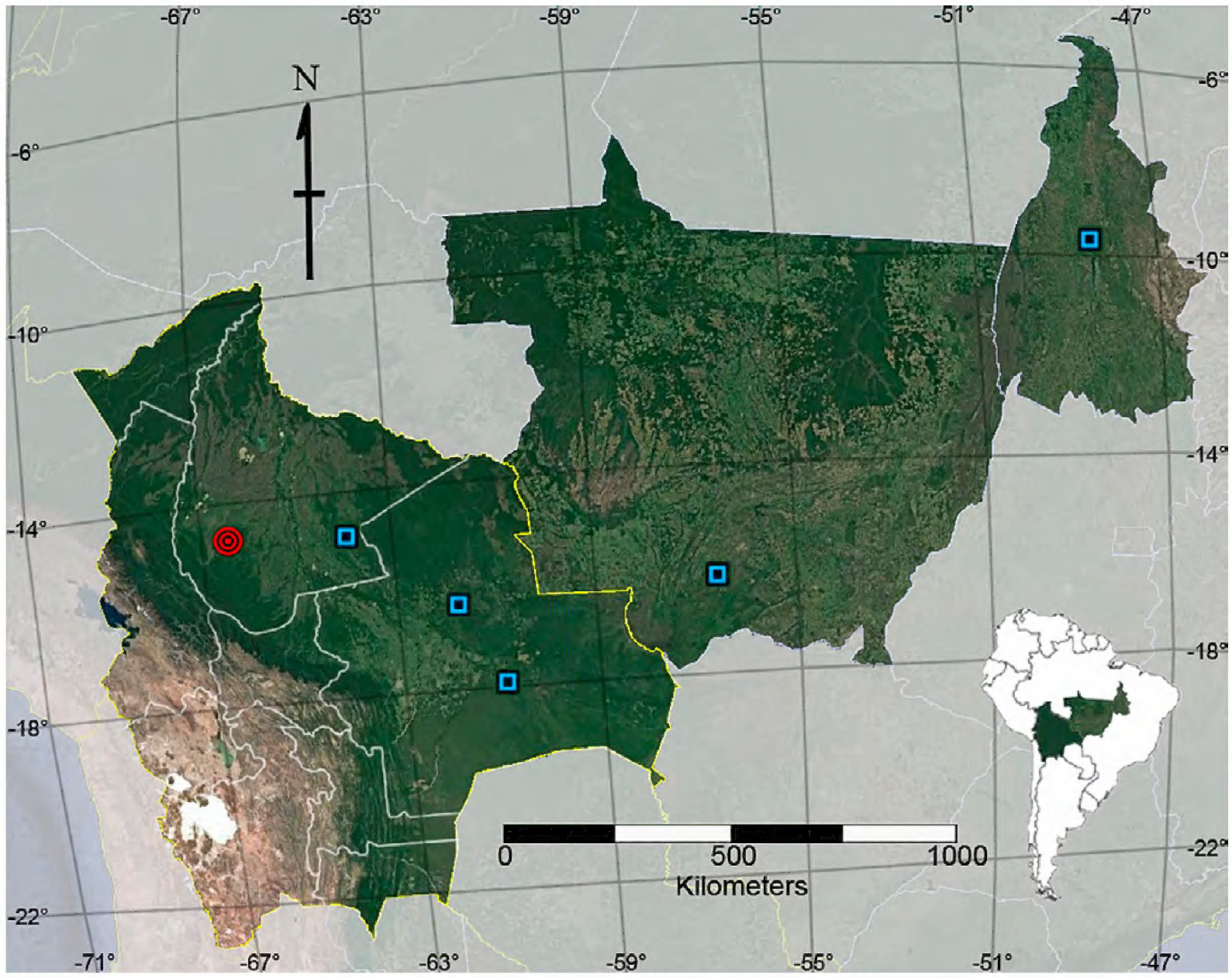

Figure 2. Distribution map of *Xenopholis werdingorum*. The new record presented in this study is indicated by a red circle and previous locations are indicated by blue squares.

ACKNOWLEDGEMENTS

We wish to thank el Museo Icticola, Centro de Investigación de Recursos Acuáticos (CIRA) and Universidad Autónoma del Beni "Joše Ballivián" for logistical support. We also thank Servicio Nacional de Áreas Protegidas and Reserva de la Biósfera Estación Biológica del Beni for access to our study area. Lastly, we want to express gratitude to the people and community of Totaizal.

LITERATURE CITED

Boulenger, G.A. 1896. Catalogue of the snakes in the British Museum (Natural History). Volume 3. Containing the Colubridae (Opisthoglyphae and Proteroglyphae), Amblycephalidae, and Viperidae. London: Trustees of the British Museum. 727 pp. 10.5962/bhl.title.54273

Costa, H. C., M. C. Nascimento and M. C. G. Oliveira. 2013. *Xenopholis undulatus* (Serpentes: Xenodontinae): Reprodução e alimentação em cativeiro Herpetologia Brasileira 2(2): 36–38.

Cunha, O. R. and F. P. Nascimento. 1978. Ofídios da Amazônia. X – As cobras da região leste do Pará. Publicações Avulsas do Museu Paraense Emílio Goeldi 31: 1–218.

Dowling, H. G. 1951. A proposed standard system of counting ventrals in snakes. British Journal of Herpetology 1: 97–99.

Hamdan, B., C. Machado, N. Citeli. 2015. Filling gaps and a new state record of *Xenopholis scalaris* (Wucherer, 1861) (Serpentes: Dipsadidae). Check List 11(5): 1746. 10.15560/11.5.146

Hoge, A.R. and P. A. Federsoni. 1975. Notes on *Xenopholis* Peters and *Paroxyrhopus* Schenkel (Serpentes: Colubridae). Memórias do Instituto de Butantan [1974] 38: 137–146.

Jansen, M., L. G. Álvarez, and G. Köhler 2009. Description of a new species of *Xenopholis* (Serpentes: Colubridae) from the Cerrado of Bolivia, with comments on *Xenopholis scalaris* in Bolivia. Zootaxa 2222: 31–45.

Loebmann, D. 2009. *Xenopholis undulatus* geographic distribution. Herpetological Review 40: 117.

Marques, O.A.V., A. Eterovic, C. Strüssmann and I. Sazima. 2005. Serpentes do Pantanal: Guia Ilustrado. Ribeirão Preto: Holos Editora. 184 pp.

Marques, O.A.V., A. Eterovic, C.C. Nogueira and I. Sazima. 2015. Serpentes do Cerrado: Guia Ilustrado. Ribeirão Preto: Holos Editora. 251 pp.

Martins, M. and M. E. Oliveira. 1998. Natural history of snakes in forests of the Manaus region, Central Amazonia Brazil. Herpetological Natural History 6(2): 78–150.

McDiarmid, R. W., M. S. Foster, C. Guyer, J. W. Gibbons and N. Chernoff. 2012. Reptile biodiversity: standard methods for inventory and monitoring. Los Angeles: University of California Press. 424 pp. doi: 10.1111/j.1095-8312.2012.01975.x

Peters, J. A. 1964. Dictionary of herpetology. New York: Hafner. 392 pp.

Ribeiro, S. C., N. S. M. S. Valença, and M. C. Guarnieri. 2011. *Xenopholis undulatus* (Jensens Ground Snake) geographic distribution. Herpetological Review 42: 116.

Uetz, P. and J. Hošek (eds.). The reptile database. Accessed at http://www.reptile-database.org, 13 February 2016.

Author contributions: RLP, CBE, DL, and RCB all collected the data. RLP and AVC identified the specimen. RLP, CBE, and AVC wrote the text.

Received: 4 March 2016
Accepted: 12 August 2016
Academic editor: Diego José Santana